

## 8. Kelly

**Program Name:** Kelly.java

**Input File:** kelly.dat

Kelly’s great-grandfather was an American prisoner of war (POW) during the Vietnam War. They were often kept isolated from one another and had to be creative to communicate with each other between cells. Talking would result in torture so an alternative approach was necessary. One method widely used during that war was the Tap Code or Knock Code which actually dates all the way back to the ancient Greeks.

The Tap Code uses a two-digit sequence to identify each letter as shown in the following grid with the first tap count as the row number and the second tap count as the column number. The ‘C’ and ‘K’ are considered the same character because, in many situations, they contribute the same sound as in “CAT” and “KITE”. POWs would tap on the cell walls with a short break between taps and a longer break between words. A tap pattern of 4-taps, 5-taps would be a ‘U’ followed by 2-taps, 4-taps for an ‘I’ and then 3-taps, 1-tap for ‘L’. I really doubt many POWs were sending messages about UIL but they could! For this programming problem, use taps counts of 0 0 for a space between words.

Tap Codes	1	2	3	4	5
1	A	B	C/K	D	E
2	F	G	H	I	J
3	L	M	N	O	P
4	Q	R	S	T	U
5	V	W	X	Y	Z

Here is an example:

- Tap count data: 4 5 2 4 3 1 0 0 4 2 3 4 1 3 1 3 4 3  
 interpreted as pairs (4,5) → “U” (2,4) → “I” (3,1) → “L” (0,0) → space  
 (4,2) → “R” (3,4) → “O” (1,3) → “C” (1,3) → “C” (4,3) → “S”  
 decodes as: “UIL ROCCS”

POWs did not care about punctuation marks and they could spell out digits if needed.

Write a program to decode messages from Kelly to her friends using the Tap Code.

**Input:** An unknown number of lines [  $1 \leq \text{lines} \leq 25$  ] of input with each containing an unknown number of integers, count  $\leq 150$ , each in the range 0 ... 5 separated by single spaces. The lines will always contain an even number of counts and no extra characters.

**Output:** Each line of input will produce one decoded message that is displayed on a single line.

**Sample input:**

```
4 5 2 4 3 1 0 0 4 2 3 4 1 3 1 3 4 3
4 4 1 1 3 5 0 0 1 3 3 4 1 4 1 5 0 0 5 2 3 4 4 2 1 3 4 3
3 5 4 2 3 4 2 2 4 2 1 1 3 2 3 2 2 4 3 3 2 2 0 0 2 4 4 3 0 0 2 1 4 5 3 3
```

**Sample output:**

```
UIL ROCCS
TAP CODE WORCS
PROGRAMMING IS FUN
```